

REMARKS

Amendments

Claims 1 and 17 have been amended without prejudice to recite preferred embodiments of applicants' invention that are more clearly distinguished from the prior art. Support is provided on page 27, lines 21-24; page 45, lines 1-3.

Current Invention

The invention relates to a mild, tear free shampoo compositions that provides excellent in-use properties and conditioning benefits. The compositions are especially suitable for use by children and teenagers. Based on extensive experimentation applicants have discovered that combinations including alky ethoxy (≥ 3 EO) sulfates, betaines, and hydroxysultones at specific ratios can provide low ocular irritation and high conditioning performance provided the total composition meets certain well defined performance standard on established objective in-vitro tests. Surprisingly these compositions do not compromise lathering and have excellent economy in use.

Claims Rejection 35 USC §103

In the Office Action mailed July 14, 2006, claims 1-4, 6-10 and 14-16 were rejected under 35 USC § 103(a) as being unpatentable over Patel et al (US 6,165,454) or Baravetto et al (US 6,174,522). Claims 1-10 and 13-16 were rejected under 35 USC § 103(a) as being unpatentable over Fairley et al (US 2002/0192180).

The Office asserts that the broad teachings in these references would have suggested compositions having the same ingredients in the same proportions and

having the same physical properties such as Zein solubility, permeability and wet combing force properties as recited in the pertinent claims. Applicants' respectfully disagree.

Before discussing each of the references individually, applicants first respectfully point out that all are silent about the problem of eye irritation. The words "eye", "ocular", "irritation", "zein", or "tear-free" are not mentioned in the reference. All are silent about any type of test or criteria for assessing mildness and eye irritation in general and zein solubility in particular. Thus, none of the references would have provided a person of ordinary skill in the art with either a reason or the means to have selected from the various optional and alternative materials disclosed, any specific combinations providing benefits in low ocular irritation potential.

Further all the references are silent about any objective method of measuring hair conditioning in general and any method based on the measurement of wet-combing force in particular. Thus, none of the references would have provided a person of ordinary skill in the art with a reason or a means to have selected from the various optional and alternative materials disclosed, any specific combinations providing high conditioning performance.

Applicants' respectfully point out that the limitations of zein solubility and wet-combing force are limitations on the total composition. Because of the "comprising" language of claim 1 and the "consisting essentially of" language of claim 17 various optional ingredients can be incorporated in the composition which may or may not influence their eye irritation potential and conditioning performance. As discussed in the specification on pages 34 and 35 the limitations provided by the performance criteria recited in these claims as measured by the disclosed in-vitro assays ensures that the total composition meets the objectives for which it was designed. Without knowing these limitations and how they are measured, a person of ordinary skill in the

art would not have had any objective means of ensuring that optionally selected materials would not have compromised the performance targets of the composition. Since all the references recited by the Office are silent about these performance targets (low eye irritation combined with high conditioning) and of any means by which they could be measured, the artisan could not have defined the compositions recited in applicants' claimed invention. It is only through hindsight that the broad disclosures in these references can be regarded as rendering obvious applicants' claimed invention.

The specific references will now be considered in turn.

Patel et al is directed to a low energy method for making stabilized hair care products comprising an anionic deterative surfactant, a water insoluble silicone and acrylic stabilizing agent wherein the method does not require added heat.

Applicants' have shown in Table 5 (Example 5, page 45) that relatively small changes in composition of an alkylether sulfate/betaine/hydroxysultaine composition (e.g., changing from 3EO to 1EO alkyl ethoxy sulfate or changing from 7% to 10% alkyl ethoxy sulfate) make the composition potentially irritant to eyes. Patel et al does not disclose a single example among the 104 examples recited that contains an alkyl ethoxy sulfate having a degree of ethoxylation of at least 3, a hydroxyl sultaine and an alkyl betaine let alone the proportions and ratios recited in applicants claims.

Applicants' respectfully submit that without the benefits of hindsight Patel et al would not have provided a person with ordinary skill in the art any basis to select the specific combinations recited in applicants claims so as to achieve compositions having the potential for both very low eye irritation as measured by a zein solubility less than about 1%, and high conditioning performance as measured by a wet combing force less than 20 gm force.

The above assertion is further supported by the results set forth in a previously entered declaration dated April 17, 2006. Cinda Carlson, one of the inventors determined the zein solubility of 6 exemplary compositions disclosed by Patel et al which she considered to be the mildest compositions among the 104 compositions disclosed in the reference. The measured Zein solubilities were

Patel et al Compositions	Zein solubility (%)
Ex 33	2.25±0.1
Ex 44	3.27±0.09
Ex 55	2.67±0.05
Ex 73	1.63±0.08

Thus, the Zein solubilities of the mildest compositions disclosed by Patel et al are all much greater than 1 and all the Patel et al compositions are expected to be moderate to significant eye irritants.

Baravetto et al is directed to aqueous conditioning shampoos containing conditioning agents having a dual particle size range, suspending agent and a deposition polymer.

As discussed above, applicants have shown that ocular irritation is highly sensitive to composition even when optimal ingredients are selected. However, not one of the 15 exemplary compositions disclosed by Baravetto et al contains an alkyl 3EO (or higher) sulfate in combination with a betaine and a hydroxysultaine. Furthermore, the ratio of alkyl ether sulfate to betaine taught in the examples is in range of about 5:1(Ex VI) to about 3:1 (Ex X). In contrast, the maximum ratio of alkylether sulfate to (betaine + hydroxysultaine) is 1.5:1, i.e., 2 to 3+ times lower than the analogous ratio taught by Baravetto et al.

Applicants' respectfully submit that without the benefits of hindsight Baravetto et al would not have provided a person having ordinary skill in the art with any basis to select the specific combinations recited in applicants claims so as to achieve compositions having the potential for both very low eye irritation as measured by a zein solubility less than about 1%, and high conditioning performance as measured by a wet combing force less than 20 gm force.

The above assertion is further supported by the results set forth below which were taken from the previously entered declaration dated April 17, 2006, summarizing the zein solubility of two exemplary compositions disclosed by Baravetto et al which were considered to be the mildest compositions among the 15 examples disclosed.

Baravetto et al Compositions	Zein solubility (%)
Ex VI	2.07±0.04
Ex X	1.91±0.01

Thus, the Zein solubilities of the mildest compositions disclosed by Baravetto et al are much greater than 1 and the compositions are expected to be moderate to significant eye irritants.

Fairley et al is directed to an aqueous conditioning shampoo composition that comprises a dispersed non-volatile, water-insoluble, oily conditioning agent having a particle size in a specified range.

As discussed above, applicants have shown that ocular irritation is highly sensitive to composition even when optimal ingredients are selected. However, Fairley et al discloses no composition that contains an alkyl 3EO (or higher) sulfate in combination with a betaine and a hydroxysultaine. Furthermore, the ratio of alkyl ether

sulfate (2EO) to betaine taught in the only example is 7:1 in contrast to the maximum ratio of alkylether sulfate to (betaine + hydroxysultaine) is 1.5:1, i.e., 6+ times lower than the analogous ratio recited in the Fairley et al example.

Applicants' respectfully submit that without the benefits of hindsight Fairley et al would not have provided a person having ordinary skill in the art with any basis to select the specific combinations recited in applicants claims so as to achieve compositions having the potential for both very low eye irritation as measured by a zein solubility less than about 1%, and high conditioning performance as measured by a wet combing force less than 20 gm force.

The above assertion is further supported by the results set forth below which were taken from the previously entered declaration dated April 17, 2006, summarizing the zein solubility of the only exemplary compositions disclosed by Fairley et al.

Fairley et al Compositions	Zein solubility (%)
Example 1	3.11±0.07

Thus, the Zein solubilities of the example disclosed by Fairley et al is much greater than 1 and is expected to be a moderate to significant eye irritants.

Claim 17 was rejected as being unpatentable over Patel et al, Baravetto et al or Fairley et al in view of Booker et al (US 2003/0114323).

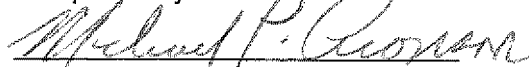
Claim 17 recites a composition consisting essentially of 7 components in defined amounts subject to limitations on the ratios of 3 key components and recites further limitations on specific physical properties including Zein solubility that ultimately is used to define the exact quantity of material within the ranges specified that will ensure low eye irritation potential.

Applicants submit that without the benefits of hindsight a person of ordinary skill in the art reading these references would not have been directed to applicants' invention as recited in claim 17 because there is no disclosure either motivating or enabling the artisan to do so. Not one composition is disclosed in any example in the four references cited that contains the combination of alkyl EO sulfate ($\geq 3\text{EO}$), betaine and hydroxyl sultaine let alone these surfactants in the ranges and ratios specified or with the remaining 4 ingredients recited in claim 17. Not one of the references discloses zein solubility or wet-combing force and in fact none of the references discloses any in-vitro method whatsoever to assess and define compositions that could have met applicants' performance target.

In summary, given the sensitivity of zein solubility (and ultimately eye irritation potential) and wet-combining force (and ultimately conditioning performance) to composition, the lack of disclosure by Patel et al, Bavaretto et al, and Fairley et al of the problem of combining low eye irritation and high conditioning performance, the ways they could be measured (e.g., Zein solubility), the measurement criteria to select suitable compositions, (e.g., Zein solubility < about 1), and any direction whatsoever about the specific combinations of ingredients (including optional ones) and proportions that will potentially be suitable, applicants respectfully submit that their amended claims are not rendered obvious by these references alone or in combination with Booker et al.

Consequently, applicants respectfully request that the 103(a) rejection be reconsidered and withdrawn and that the application be allowed to issue.

Respectfully submitted,



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